

REMARKS

Claims 1-20 are in the case and presented for reconsideration.

Claims 1 and 9 have been amended to clarify the claimed invention.

Rejections under 35 U.S.C. § 112

Claim 9 was rejected under 35 U.S.C. § 112, second paragraph as being indefinite.

Applicants submit that the amendment to claim 9 overcomes this rejection by clarifying that the transmittance is less than 20% of the incident radiation.

Rejections under 35 U.S.C. § 103

Claims 1-8 and 16-20 were rejected under 35 U.S.C. § 103 (a) as being obvious over Wu et al. (US 5,925,710). Applicant respectfully traverses this rejection for the reasons stated below.

One aspect of Applicants claimed invention is for a polyester composition comprising a polyester and a reheat enhancing compound. The polyester consists essentially of terephthalic acid residues and diol residues. The diol component of the polyester consists essentially of ethylene glycol (EG), from 1 to 4 mole % diethylene glycol, (DEG) and from 1 to 4 mole % of 1,4-cyclohexanedimethanol, (CHDM). The polyester has an specific inherent viscosity which satisfies the equation:

$$\text{Inherent Viscosity} - X - Y = 0.74 \text{ to } 0.80 \text{ dl/g,}$$

where X is the mole fraction of CHDM (expressed as a decimal) and Y is the mole fraction of DEG (expressed as a decimal).

Another aspect of the present invention is a process for forming a heat-set container. The process includes the steps of injection molding the polyester composition described above to form a container perform; reheating or temperature conditioning the preform; and stretch blow molding the preform into a heated mold.

Applicants respectfully submit that Wu does not suggest the claimed invention. Wu discloses a polyester suitable for packaging applications having improved infrared absorption characteristics. The polyester contains from 3-60 parts per million by weight of graphite dispersed in the polyester. Wu teaches that suitable polyesters have at least 65 mole %

terephthalic acid and at least 65 mole % ethylene glycol. Wu further teaches that in addition to polyester made from terephthalic acid (or dimethyl terephthalate) and ethylene glycol, or a modified polyester, suitable polyesters also include using 100% of an aromatic diacid such as 2,6 naphthalene dicarboxylic acid or bibenzoic acid, or their diesters.

Applicants agree with the examiner that Wu teaches where the polyester components are modified by one or more diol components other than ethylene glycol, preferred modifying diol components are 1,4-cyclohexanedimethanol, diethylene glycol, or a mixture of these modifying diols. However, Wu does not teach or suggest that the polyester contain less than 4 mole % each of these modifying diols. Wu teaches that the polyester has at least 65 mole % ethylene glycol, which means that the remaining 35 mole % can be either 1,4-cyclohexanedimethanol, diethylene glycol, or a mixture of the two. This is clearly outside of Applicants' claimed invention. Additionally, referring to the example in Wu, column 7, the polyester contained only DEG as a secondary diol.

Additionally, Wu et al. is completely silent as to the inherent viscosity of the polyester product. The examiner candidly admits that Wu is silent as to the IV of the polyester but maintains that the product would have an IV similar to that of the present invention. However, Applicants submit that the examiner is using hindsight reconstruction to derive the present invention. The polyester art is replete with polyesters having IV ranging from 0.65 to as high as 1.2. Even Pruett et al., cited by the examiner and discussed in greater detail below, notes that polyesters for bottle applicants preferably have an IV of 0.65 to .085. Even assuming that the polyester of Wu has such an IV, Applicants submit that Wu would still not teach or suggest the present invention. Applicants claim that the polyester of the present invention must have an inherent viscosity (IV) that corresponds to the formula:

$$IV - X - Y = 0.74 \text{ to } 0.80 \text{ dl/g,}$$

where X is the mole fraction of CHDM (expressed as a decimal) and Y is the mole fraction of DEG (expressed as a decimal).

Wu teaches the polyester having up to 35 mole % of DEG and/or CHDM. This would put the polyester with a value of less than 0.50 dl/g., which is clearly outside of the present invention. Applicants submit that the examiner is not considering the limitations of the present invention and at most Wu provides nothing more than what may be a promising field endeavor

but gives not guidance as to what or how much of the modifying diols should actually be present in the polyester.

Accordingly, Applicants submit that claims 1-8 and 16-20 are patentably distinguishable over Wu et al. (US 5,925,710) and respectfully request that the 35 U.S.C. § 103(a) rejection be withdrawn.

Claims 6-8 were rejected under 35 U.S.C. § 103(a) as being obvious over Wu et al. as applied above, and further in view of Tindale (US 5,419,936). Applicant respectfully traverses this rejection.

Regarding Wu et al., Applicants comments and arguments are incorporated with regard to the combination of Wu et al. in view of Tindale. Applicants further submit that Tindale does not overcome the deficiencies of Wu et al. to motivate one skilled in the art to derive Applicants' invention.

Tindale discloses a bottle polymer containing metal particles, which intrinsically absorb radiation in the wavelength region 500 nm to 2000 nm, in a quantity such that the reheat time of the polymer is less than the reheat time of the polymer in the absence of that quantity of particles. Tindale further discloses a method of making a thermoplastic polymer composition comprising a polymer which contains metal particles, which intrinsically absorb radiation in the wavelength region 500 nm to 2000 nm, in a quantity such that the reheat time of the polymer is less than the reheat time of the polymer in the absence of that quantity of particles which method comprises blending a polymer with fine particles of a reducible metal compound and with a reducing agent capable of reducing the compound to the metal and reacting the metal compound with the reducing agent to generate the fine particles of metal.

The examiner cites Tindale for teaching antimony, tin, copper, silver, gold, arsenic, cadmium, mercury, lead, palladium and platinum or mixtures thereof as reheating aids. Tindale teaches that a preferred polyester is one which comprises at least 50 mole %, preferably at least 70 mole %, of ethylene terephthalate residues. The polyester may also contain residues derived from ethylene isophthalate, ethylene naphthalate, ethoxyethylene terephthalate, ethoxyethylene isophthalate or ethoxyethylene naphthalate. naphthalate, ethoxyethylene terephthalate, ethoxyethylene isophthalate or ethoxyethylene naphthalate. Moreover, none of the examples of Tindale include a diol other than ethylene glycol.

Applicants submit that Tindale would not motivate one skilled in the art to make a polyester having an IV meeting the limitations of the presently claimed invention. Accordingly, claims 6-8 are patentably distinguishable over the combination of Wu et al. in view of Tindale and respectfully request the 35 U.S.C. § 103(a) rejection of these claims be withdrawn.

Claims 9-15 were rejected under 35 U.S.C. § 103(a) as being obvious over Wu et al. in view of Pruett et al. (US 5,925, 710). Applicant respectfully traverses this rejection.

As noted above, Wu et al. teaches the polyester having up to 35 mole % of DEG and/or CHDM and for a polyester having an IV of from 0.65 to 0.85 dl/g, the polyester is clearly outside of the presently claimed invention. Moreover, Wu provides nothing more than what may be a promising field endeavor but gives not guidance as to what or how much of the modifying diols should actually be present in the polyester. Applicants submit that Pruett et al. does not motivate one skilled in the art to modify the teachings of Wu et al. to derive the present invention.

Regarding Wu et al., Applicants comments and arguments are incorporated with regard to the combination of Wu et al. in view of Pruett et al.

Pruett et al. teach a polyester containing certain UV (ultraviolet light) absorbing methine compounds which have been reacted into the polymer as a chain terminator to impart UV screening properties on the polyester. Applicants agree with the examiner that the UV absorbing compounds taught in Pruett are the same as those of the present invention. However, Pruett et al. would not motivate one skilled in the art to modify Wu et al. to derive the present invention of a polyester having diol residues consisting essentially of ethylene glycol, about 1 to 4 mole percent DEG, and about 1 to 4 mole percent CHDM wherein the polyester has an IV meeting the claim limitations.

Pruett et al. teach a polyester having a glycol moiety of at least about 50 mol % ethylene glycol or 1,4-cyclohexanedimethanol residue. Thus, assuming the polyester has an IV of from 0.65 to 0.85 dl/g, that would mean the polyester would have a value of less than about 0.35, which is clearly outside of the 0.74 to 0.80 dl/g presently claimed.

Moreover, referring to Example 54 of Pruett et al., column 11, the polyester had 31 mole % CHDM and an IV of 0.8 dl/g. This would give the polyester a value of 0.49, which is outside of the claimed invention.

Additionally, it is well settled that there must be some teaching or motivation in order to combine references that is found in the references themselves. Applicants submit that no such motivation is found in either reference, Wu et al. or Pruett et al., to incorporate a UV absorber into a polyester containing a reheat improvement compound.

Thus, claims 9-15 are patentably distinguishable over the combination of Wu et al. in view of Pruett et al. and respectfully request the 35 U.S.C. § 103(a) rejection of these claims be withdrawn.

Claims 9-15 were rejected under 35 U.S.C. § 103(a) as being obvious over Wu et al. in view of Tindale (US 5,419,936) and further in view of Pruett. Applicant respectfully traverses this rejection.

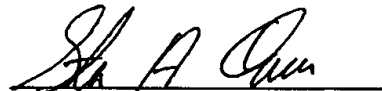
Regarding the combination of Wu et al. in view of Tindale, Applicants comments and arguments are incorporated with regard to the combination of Wu et al. in view of Tindale and further in view of Pruett et al.

As noted above, Wu et al. in view of Tindale does not motivate one skilled in the art to make a polyester composition having an IV meeting the limitations of the presently claimed invention, and it is clear from the discussion above with regard to Pruett et al. that Pruett too does not motivate one skilled in the art to modify the teachings of either Wu et al. or Tindale, either alone or in combination, to derive the presently claimed invention having the specific IV and having EG, DEG and CHDM diol residues in the polyester chain.

Thus, claims 9-15 are patentably distinguishable over the combination of Wu et al. in view of Tindale and further in view of Pruett et al. Applicants respectfully request the 35 U.S.C. § 103(a) rejection of these claims be withdrawn.

In view of the above, Applicants respectfully submit that the claimed invention is patentably distinguishable over the cited references of Wu et al. (US 5,925,710), Tindale (US 5,419,936), and Pruett et al. (US 5,925, 710) either alone or in any combination and respectively request that the 35 U.S.C. § 103(a) rejection of claims 1-20 be withdrawn. Applicants further request that the application be passed to allowance at the examiner's earliest convenience.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "S. A. Owen", is written over a horizontal line.

Steven A. Owen
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